

Appendix M. Product Formulations Containing Multiple Active Ingredients

The Agency does not routinely include, in its risk assessments, an evaluation of mixtures of active ingredients, either those mixtures of multiple active ingredients in product formulations or those in the applicator's tank. In the case of the product formulations of active ingredients (that is, a registered product containing more than one active ingredient), each active ingredient is subject to an individual risk assessment for regulatory decision regarding the active ingredient on a particular use site. If effects data are available for a formulated product containing more than one active ingredient, they may be used qualitatively or quantitatively^{1 2}.

There are no product LD₅₀ values, with associated 95% Confidence Intervals (CIs) available for carbaryl.

As discussed in USEPA (2000) a quantitative component-based evaluation of mixture toxicity requires data of appropriate quality for each component of a mixture. In this mixture evaluation an LD₅₀ with associated 95% CI is needed for the formulated product. The same quality of data is also required for each component of the mixture. Given that the formulated products for carbaryl do not have LD₅₀ data available it is not possible to undertake a quantitative or qualitative analysis for potential interactive effects. However, because the active ingredients are not expected to have similar mechanisms of action, metabolites, or toxico-kinetic behavior, it is reasonable to conclude that an assumption of dose-addition would be inappropriate. Consequently, an assessment based on the toxicity of carbaryl is the only reasonable approach that employs the available data to address the potential acute risks of the formulated products.

¹ Overview of the Ecological Risk Assessment Process in the Office of Pesticide Programs, Environmental Protection Agency (January 2004) (Overview Document).

² Memorandum to Office of Prevention, Pesticides and Toxic Substance, US EPA conveying an evaluation by the U.S. Fish and Wildlife Service and National Marine Fisheries Service of an approach to assessing the ecological risks of pesticide products (January 2004).

Table M.1. CARBARYL PRODUCTS ^{i,ii}

PRODUCT/TRADE NAME	EPA Reg.No.	% Carbaryl	PRODUCT		ADJUSTED FOR ACTIVE INGREDIENT	
			LD 50 (mg/kg)	CI (mg/kg)	A.I Adjusted CI (mg/kg)	A.I Adjusted LD50 (mg/kg)
Bonide Vegetable Floral Dust or Spray	00000400029	1.25	ND	ND	ND	ND
Bonide Fruit Tree Spray	00000400059	0.5	>5000	ND	ND	ND
Bonide A Complete Fruit Tree Spray	00000400122	0.3	>500	ND	ND	ND
Bonide Slug, Snail & Sowbug Bait	00000400333	5	ND	ND	ND	ND
Bonide Snail, Slug & Sowbug Bait	00000400449	5	ND	ND	ND	ND
Bonide Snail N Slug Plus	00000400450	5	CANCELLED 08/07/07			
Copper Dragon Tomato & Vegetable Dust	00000400458	2	ND	ND	ND	ND
GET-A-BUG Snail, Slug & Insect Killer	00023902514	5	ND	ND	ND	ND
Holiday Flea & Tick Stop for Dogs and Cats	00272400750	5	CANCELLED 07/16/07			
Holiday Tick Stop	00272400751	5	CANCELLED 07/16/07			
Ferti-Lome Home Garden Bug Bait	00740100265	4	ND	ND	ND	ND
Corry's Slug, Snail & Insect Killer	00811900005	5	ND	ND	ND	ND
The Andersons GC Bicarb Insecticide + Fertilizer	00919800233	2.3	>5000	ND	ND	ND
The Andersons Bicarb Insect Killer Granules	00919800234	2.3	>5000	ND	ND	ND
The Andersons Bicarb Insecticide + Fertilizer	00919800235	2.3	>5000	ND	ND	ND
ECHO Home Garden Fungicide and Insecticide	06006300015	5	CANCELLED 07/16/07			
i From registrant submitted data to support registration. Compiled by Office of Pesticide Programs Health Effects Division.						
ii Carbaryl LD50= 307 mg/kg; CI= 286.1-329.5 mg/kg						